



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/754,245	01/05/2001	Christopher E. Ruckman	V1000.0003/P003	3645

24998 7590 04/07/2004

DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP
2101 L STREET NW
WASHINGTON, DC 20037-1526

EXAMINER

TORRES, MELANIE

ART UNIT	PAPER NUMBER
----------	--------------

3683

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/754,245

Applicant(s)

RUCKMAN ET AL.

Examiner

Melanie Torres

Art Unit

3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply set forth above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is set forth above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the shortened period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. (See 37 CFR 1.704(b)).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claim

- 4) ☐ Claim(s) 1-2 is/are pending in the application.
- 4a) Of the above claim(s) is/are withdrawn from consideration.
- 5) ☒ Claim(s) 26 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 25 is/are rejected.
- 7) ☐ Claim(s) is/are objected to.
- 8) ☐ Claim(s) is/are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Rejection of drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The claim(s) is/are objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
- 2) ☐ Certified copies of the priority documents have been received in Application No. .
- 3) ☐ The certified copies of the priority documents have been received in this National Stage application in accordance with the International Bureau (PCT Rule 17.2(a)).

* See the attached sheet for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of Informal Patent Application (PTO-892)
- 2) ☐ Notice of Informal Patent Application (PTO-948)
- 3) ☐ Informal Patent Application (PTO-SB'03)
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date:
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacot et al. in view of Sandercock.

Re claims 1, 4, 5, 13-19, 23 and 25, Jacot et al. discloses a vibration control system comprising an actuator (28), a flux sensor (76), and a digital control system (200) wherein the electromagnetic actuator comprises a flux sensor which sends signals representative of the flux generated in the gap between the armature and the magnetic coil. However, Jacot et al. does not teach a digital control system for operating actuators as a function of sensed vibration of a variable-state structure, sensed vibration of a feedforward reference and the variable state of the variable state structure. Sandercock teaches a digital control system for operating actuators as a function of sensed vibration of a variable-state structure, sensed vibration of a feedforward reference and the variable state of the variable state structure. (Column 2, line 64 – Column 3, line 25) It would have been obvious to one of ordinary skill in the art at the time the invention was made to have applied the teachings of Sandercock to the system

Art Unit: 3683

of Jacot et al. so as to allow for active vibration isolation that can be applied equally well to large and small structures for a wide range of frequencies.

Re claim 2, Jacot et al. as modified teaches wherein the magnet coil (60) is integrally fixed to the controlled structure. (Fig. 5)

Re claim 3, Jacot et al. as modified teaches wherein the flux sensor (76) is connected to the magnet coil (60). (Fig. 5)

Re claim 6, Jacot et al. as modified teaches wherein the digital control system includes modal feedback loops (212) for controlling the actuators in response to signals from the vibration sensors (76).

Re claim 7, Jacot et al. as modified teaches wherein the gains of the modal feedback loops are controlled as a function of the variable state of the variable-state structure. (Column 9, lines 39-66)

Re claim 8, Jacot et al. as modified teaches one or more feedforward sensors (74) for sensing vibration of feedforward references.

Art Unit: 3683

Re claim 9, Jacot et al. as modified teaches wherein the digital control system (200) includes one or more feedforward loops (218) for controlling the actuators in response to signals from the feedforward sensors (74).

Re claims 10-12, Jacot et al. as modified teaches wherein the plant transfer functions of the feedforward loops are controlled as a function of the variable state of the variable-state structure. (Column 9, lines 39-66)

Re claim 20, Jacot et al. discloses wherein the processor (200) is arranged to calculate the difference between the flux density sensed by the magnetic flux density sensor and the flux density required in the actuator. (Column 9, lines 39-66)

Re claim 21, Jacot et al. discloses wherein the electromagnet (60) is integrally connected to the variable-state structure, and the armature (66) is integrally connected to an external structure.

Re claim 22, Jacot et al. discloses wherein the electromagnet (60) is sealed to prevent degradation by fluids and dust. (Fig. 5)

Allowable Subject Matter

3. Claim 26 is allowed.

Response to Arguments

4. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection. Upon further consideration, the above rejection has been re-applied since it appears that the invention of Jacot et al. as modified does not differ structurally from the instant invention. It is unclear how applicant's invention can generate a "force-linearized flux" and the invention of Jacot et al. does not.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Torres whose telephone number is (703)305-0293. The examiner can normally be reached on Monday-Friday, 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on (703)308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-2571 for regular communications and (703)308-2571 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1113.

MT
April 4, 2004

Melanie Torres
4-4-04